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## **Persistence of Trace Organic Contaminants from a Commercial Biosolids-Based Fertilizer in Aerobic Soils**

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### **ABSTRACT**

Municipal biosolids are recycled as agricultural fertilizers. Recent studies have raised concerns due to the presence of emerging contaminants in municipal biosolids. Previous research suggests that these contaminants have the potential to reside in biosolids-based fertilizers that are commercially distributed. Use of these products in urban/suburban areas may provide a pathway for these contaminants to enter ecosystems and impact human and environmental health. Soils from Purdue University's community garden and MiracleGro Potting Mix were chosen to represent commonly used urban/suburban growth media. Triclosan, triclocarban, and methyl parabens were selected as compounds of interest for this study. A heat treated commercial biosolids-based fertilizer (Milorganite) was applied to growth media at a rate twice the recommended rate. Microcosm aeration and moisture content were monitored weekly and adjusted accordingly. Microcosms were sacrificed in triplicate at 0, 3, 7, 14, and 21 days, though data will continue to be collected up to 112 days. Soils were extracted using a 1:1 methanol:acetone (v/v) mixture, were cleaned up with microcentrifugation, and analyzed via LC-MS/MS. Results demonstrate no degradation of triclocarban in either growth media, and no degradation of triclosan in Purdue University community garden soil, over 14 days. Degradation rates of triclosan in MiracleGro Potting Mix were inconclusive. This study should further our ability to assess risk and assist in guidance towards safer use of biosolids-based fertilizers.

### **KEYWORDS**

Emerging contaminants, biosolids-based fertilizer, persistence, degradation